

What is claimed is:

- 1 1. A therapeutic ultrasound device comprising:
2 a substrate having a face and configured to be positionable on a
3 body surface of a human or veterinary patient; and
4 a plurality of ultrasound transducer elements disposed on the
5 face of the substrate;
6 the device being structured to be effective to deliver ultrasound
7 energy to at least an organ or portion of the patient's body for a
8 sufficient time to stimulate angiogenesis and/or relieve ischemia.
- 1 2. An ultrasound device according to Claim 1 wherein the substrate
2 comprises a flexible sheet.
- 1 3. An ultrasound device according to Claim 1 further comprising drive
2 electronics for controlling operation of at least some of the
3 transducer elements.
- 1 4. An ultrasound device according to claim 1 wherein the transducer
2 elements comprise piezoelectric ceramic material.
- 1 5. An ultrasound device according to claim 1 wherein the transducer
2 elements comprise PZT.
- 1 6. The ultrasound device according to claim 1 wherein the transducer
2 elements are rigidly connected together.
- 1 7. The ultrasound device according to claim 1 being configured to cover
2 a portion of a human chest.
- 1 8. The ultrasound device according to claim 1 being configured to cover
2 a portion of a human leg.

- 1 9. A method for causing an ultrasound-induced effect within the body
2 of a human or veterinary patient, said method comprising the steps
3 of:
4 positioning an ultrasound device including a plurality of flexibly
5 connected ultrasound transducer elements on the body surface of
6 the patient; and
7 using the ultrasound transducer elements to deliver ultrasound
8 to at least a portion of the patient's body for sufficient time to cause
9 the ultrasound-induced effect.
- 1 10. A method according to claim 9 wherein the step of using the
2 ultrasound transducer elements comprises radiating ultrasound into
3 the patient's body for a time period of at least about one hour.
- 1 11. A method according to claim 9 wherein the ultrasound has a
2 frequency in the range of about 1.6 MHz to about 8 MHz.
- 1 12. A method according to claim 9 wherein the ultrasound has a
2 frequency in the range of about 40KHz to about 400 KHz.
- 1 13. A method according to claim 9 wherein the all of the transducer
2 elements emit ultrasound of substantially the same frequency.
- 1 14. A method according to claim 9 wherein the frequency of ultrasound
2 emitted by at least one of the transducer elements is different from
3 the frequency of ultrasound that that is emitted from at least one of
4 the other transducer elements.
- 1 15. A method according to claim 9 wherein all of the transducer
2 elements emit ultrasound during the same time period.

- 1 16. A method according to claim 9 wherein at least one of the
2 transducer elements emits ultrasound during a time period that is
3 different from the time period during which at least one of the other
4 transducer elements emits ultrasound.
- 1 17. A method according to Claim 9 wherein the ultrasound-induced
2 effect is angiogenesis and/or treatment or prevention of ischemia.
- 1 18. A method according to Claim 9 wherein the ultrasound device is
2 positioned on the chest and used to promote angiogenesis in the
3 heart for relief of myocardial ischemia.
- 1 19. A method according to Claim 9 wherein the ultrasound device is
2 used to cause thrombolysis in the patient.
- 1 20. A method according to Claim 9 wherein the patient is presenting
2 with ST segment changes or other clinical or biochemical indicia of
3 myocardial infarction.
- 1 21. A method according to Claim 9 wherein the ultrasound device is
2 used to prevent restenosis after angioplasty and/or stent placement
3 in a coronary artery or other vessel.
- 1 22. A method according to Claim 9 wherein the ultrasound device is
2 positioned on the patient's calf and used to promote angiogenesis,
3 relieve myocardial ischemia and/or intermittent claudication or other
4 ischemic condition of the leg.
- 1 23. A method according to Claim 9 wherein the ultrasound device is
2 positioned on the chest of a patient who suffers from dilated
3 cardiomyopathy and used to promote angiogenesis and/or improve
4 left ventricular function.

- 1 24. A method according to Claim 9 wherein the ultrasound device is
2 positioned on at least one extremity of a patient who suffers from
3 diabetic neuropathy or other neuropathy and used to promote
4 angiogenesis and /or relieve pain resulting from such neuropathy.
- 1 25. A method according to claim 9 wherein the step of using the
2 ultrasound transducer elements comprises radiating ultrasound
3 energy from more than one of the transducer elements
4 simultaneously.
- 1 26. A method according to claim 9 wherein the step of using the
2 ultrasound transducer elements comprises radiating ultrasound
3 energy from each of the transducer elements in an alternating
4 manner.
- 1 27. A method according to claim 9 wherein the step of using the
2 ultrasound transducer elements comprises radiating ultrasound
3 energy into the patient's body in a preprogrammed sequence.